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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: )  
CLAYTON ET AL. )  
Serial No. 09/780,957 )  
Filing Date: February 9, 2001 )  
For: POWER GENERATOR SYSTEM HAVING )  
DIODE SUPPORT AND RUPTURE )  
CONTAINMENT DEVICE AND )  
ASSOCIATED METHODS )

Examiner: LE, D.  
Art Unit: 2834

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AMENDMENT

Director, U.S. Patent and Trademark Office  
Washington, D.C. 20231

Sir:

Responsive to the Official Action of May 23, 2002,  
please enter the amendments and remarks set out below.

In the Drawings:

Submitted herewith is a request for a proposed  
drawing modification as indicated in red ink to number the  
metal electric connection regions illustrated in FIGS. 2 and  
5.

In the Specification:

Please amend the paragraph beginning at page 2, line  
32 as follows:

a' -- The present invention additionally provides a  
diode support and rupture containment device which easily  
mounts adjacent a diode so that access to the diode for  
inspection, cleaning, or other associated maintenance can be  
achieved, which has insulating qualities and strength to  
resist high temperature material being ejected or sprayed  
during diode rupture, and which prevents damage to other

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*A1*  
*cond.*  
portions of a power generation system in the event a diode ruptures or is otherwise damaged. The diode support and rupture containment device is also advantageously relatively inexpensive, easily retrofittable within a power generation system, and provides support for the ceramic or insulative case of a high voltage diode. The present invention further provides methods of containing diode material, e.g., ejected molten material, in the event a diode ruptures or is otherwise damaged. --

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Please amend the paragraph beginning at page 3, line 11, as follows:

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*A2*  
-- More particularly, a power generator system is provided having a power generator and an exciter for excitation of the power generator. The exciter preferably includes a diode wheel. The diode wheel has rotating support structure, a plurality of diodes mounted to the structure, and a plurality of diode support and rupture containment devices each positioned adjacent a respective one of the plurality of diodes to support the diode and contain the diode within the confines thereof in the event the diode ruptures. Each of the diode support and rupture containment devices preferably includes a pair of spaced-apart containment members having the diode positioned therebetween. --

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\ Please amend the paragraph beginning at page 5, line 5, as follows:

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*A3*  
-- The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown.

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*A3*  
*cont.* This invention may, however, be embodied in many different forms and should not be construed as limited to the illustrated embodiments set forth herein. Rather, these illustrated embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numbers refer to like elements throughout.--

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Please amend the paragraph beginning at page 6, line 11, as follows:

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*A4* -- As illustrated in FIGS. 2-3, each of the diode support and rupture containment devices 40 preferably includes a pair of spaced-apart containment members 42, 47 having the diode 35 positioned therebetween. Each of the containment members 42, 47 is preferably formed of an insulating material and has a substantially annular shape to thereby define an insulative disc. Each of the containment members 42, 47 preferably are positioned to cover or encase only the end portions of the diode 35 where rupture containment and support are more needed as understood by those skilled in the art (see FIG. 5). The insulating material of each containment member 42, 47 is preferably strong enough to resist the temperature of the molten material ejected from a diode 35 such as when material contacts a metal-electric junction 45 where the diode 35 is connected, e.g., to or through a heat sink 32 to a lead member 33 and/or the rotating support structure 31 of the diode wheel 30. The heat sinks 32 and diodes 35 are preferably mounted in the module with heat sink support straps 37, bolts or other fasteners 38, stand-off insulators 39 and spacers 29 as understood by those skilled in the art. This containment, for example, advantageously prevents phase-to-

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*A4*  
*amid* .phase arcing between diode mount assemblies.--

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Please amend the abstract of the disclosure at page  
12 as follows:

*A5*

-- A power generator system (10) is provided having a power generator (15) and an exciter (20) for excitation of the power generator (15). The exciter (20) preferably includes a diode wheel (30). The diode wheel (30) has an a rotating support structure (31), a plurality of diodes (35) mounted to the rotating support structure (31), and a plurality of a diode support and rupture containment devices (40) each positioned adjacent a respective one of the plurality of diodes (35) to support the diode (35) and contain the diode (35) within the confines thereof in the event the diode ruptures. Each of the diode support and rupture containment devices (40) includes a pair of insulative spaced-apart containment members (42, 47) having the diode (35) positioned therebetween. --

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**In the Claims:**

Please cancel Claims 2, 6, and 9

Please amend Claims 1, 5 and 8 as follows:

*A6*

1. (Amended) A power generator system comprising:  
a power generator; and  
an exciter for excitation of said power generator,  
the exciter including a diode wheel, the diode wheel having a rotating support structure, a plurality of diodes mounted to the structure, and a plurality of a diode support and rupture

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*Ab cond.*  
containment devices each positioned adjacent a respective one of the plurality of diodes to support the diode and contain the diode within the confines thereof in the event the diode ruptures, the diode support and rupture containment device including a pair of spaced-apart insulative containment members arranged to have a diode positioned therebetween.

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2. (Amended) A power generation system as defined in Claim 1, wherein each of the containment members being formed of an insulating material.

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*A7*  
5. (Amended) An exciter for a power generation system, the exciter comprising:  
a rotating support structure;  
a diode mounted to the support structure; and  
a diode support and rupture containment device positioned to support the diode and contain the diode within the confines thereof in the event the diode ruptures, the diode support and rupture containment device including a pair of spaced-apart insulative containment members arranged to have a diode positioned therebetween, the diode including an insulative casing, each of the pair of insulative containment members positioned to extend from a metal-electric connection region when the diode is connected to a conducting member to the insulative casing of the diode.

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*A6*  
8. (Amended) A diode support and rupture containment device for a diode of a power generation system, the device comprising:  
a pair of spaced-apart insulative containment members arranged to have a diode positioned therebetween, the diode including an insulative casing, each of the pair of

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*as  
mid.* containment members positioned to extend from a metal-electric connection region when the diode is connected to a conducting member to the insulative casing of the diode.

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REMARKS

Applicants thank the Examiner for a thorough examination of the present application. A proposed drawing modification is being submitted herewith to address the Examiner's objection to the drawings. In addition, the specification has been amended to correct minor errors. The abstract has been amended to overcome the Examiner's objection to its length. Dependent claims 2, 6, and 9 have been cancelled. Independent Claims 1, 2, 5 and 8 have been amended to more clearly define the invention. The drawing modification and amendments are fully supported in the specification as originally filed, and no new matter has been added.

I. The Invention

The invention as set forth, for example, in Claim 1 is directed to a power generator system that comprises a power generator and an exciter for excitation of the power generator. The exciter includes a diode wheel, which, in turn, includes a rotating support structure and a plurality of diodes mounted to the rotating support structure. The exciter also includes a plurality of diode support and rupture containment devices. Each diode support and rupture containment device is positioned adjacent a respective one of the plurality of diodes to thereby support the diode and contain the diode within the confines thereof in the event the diode ruptures. Each diode support and rupture containment

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device, moreover, comprises a pair of spaced-apart insulative containment members arranged to have a diode positioned therebetween.

Claim 5 is similar is so far as it is directed to an exciter that also includes a rotating support structure, a diode mounted to the support structure, and a diode support and rupture containment device comprising a pair of spaced-apart insulative containment members arranged to have a diode positioned therebetween. Claim 8 is also similar in that it is directed to a diode support and rupture containment device that includes a pair of spaced-apart insulative containment members arranged to have a diode positioned therebetween, each member also positioned to extend from a metal-electric connection region.

## **II. The Claims Are Patentable**

The Examiner rejected independent Claim 1 citing U.S. Patent 4,827,165 to Nold. The Examiner rejected independent Claims 5 and 8 citing Nold in view of U.S. Patent 3,896,320 to Moffatt and further in view of the admitted prior art in FIG. 4 of Applicant's specification. Claim 1 has been amended to include features formerly recited in dependent Claim 2. Claims 5 and 8 have been amended, respectively, to include features formerly recited in dependent Claims 6 and 9.

As set forth below, amended Claims 1, 5 and 8 each defines over the combination of Nold in view of Moffat and the admitted prior art. Applicants respectfully maintain that the references relied on by the Examiner fail to disclose a diode support and rupture containment device comprising a pair of spaced-apart insulative containment members arranged to have a diode positioned therebetween.

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Nold discloses diodes arranged in a stacked relation with one another. Each diode is sandwiched between a pair of thin plates that are each formed of a thermally and electrically conductive material. (Col. 3, Lines 1-7.) With respect to the elements that the Examiner contends are representative of containment members (unnumbered and not described in the Nold written description), there is only one such element for each diode.

Because, as the Examiner correctly notes, Nold fails to disclose a pair of containment members, the Examiner relies on a combination of Nold and Moffatt in an attempt to produce the claimed invention. Indeed, Nold in view of Moffat, teaches the inverse.

Each diode in Moffatt is either positioned within an annular junction member or an annular support member. (Col. 6, Lines 3-10.) Each diode within the annular junction member has its anode connected to a threaded base and its cathode at the collet receiving end thereof. (Col. 6, Lines 3-6.) Conversely, each diode within the annular support member has its cathode connected to a threaded base and an anode connected to the collet receiving end thereof. (Col. 6, Lines 6-10.)

With respect to both classes of diodes, however, the collet receiving ends that sandwich each diode are conductive rather than insulative. This is so because with Moffat an electrical connector must connect to the collet receiving ends that provide one of the two elements sandwiching each diode. This is necessary to provide the rectifying bridge that the assembly of Moffat is intended to provide. It, therefore, is counter to Moffat to sandwich each diode between insulative support and rupture containment members.



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As for Nold, each diode as already noted is sandwiched between thin plates that are expressly described as being made of a "material that is a good thermal and electric conductor." Accordingly, neither Nold nor Nold combined with Moffat discloses the claimed invention. Indeed, in view of Moffat, the combination in fact teaches away from a diode support and rupture containment device comprising a pair of spaced-apart insulative containment members arranged to have a diode positioned therebetween.

Applicants further assert that the Examiner has failed to articulate any motivation or suggestion for combining Nold and Moffatt. Although the Examiner maintains that both references are drawn from the same field of endeavor, this merely negates an inference that the two are directed to non-analogous art; it does not provide the required suggestion or motivation for making such a combination.

Moreover, the structure of the diode arrangement is so different in each, that there could be no proper motivation or suggestion for combining the references. As already noted, for example, Nold is directed to diodes arranged in a stacked relation with one another and separated by thermally and electrically conductive plates. Moffatt, by contrast, is directed to an entirely different diode arrangement in which each diode is connected to a threaded base and corresponding collet receiving end.

Applicants, therefore, respectfully assert that there is no motivation or suggestion for the combination of references put forward by the Examiner. The combination fails to disclose each feature of independent Claims 1, 5 and 8 and, more particularly, teaches away from each. Accordingly, Applicants respectfully contend that independent Claims 1, 5

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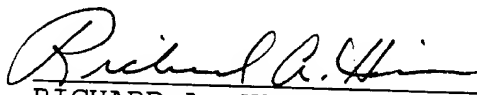
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and 8 define over the prior art. The other claims that depend from these independent claims set forth additional features and, thus, also define over the prior art. No additional discussion of the dependent claims is therefore necessary.

#### CONCLUSION

In view of the arguments provided herein, it is submitted that all the claims are patentable. Accordingly, a Notice of Allowance is requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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